

WHAT IS CLAIMED:

1. Apparatus for providing positive control over a printable medium being processed by a printing system, said apparatus comprising:

5 means for contacting a printable medium from first and second sides of the printable medium; and

means for driving the contacting means along a transport path of the printable medium in synchronism with the printable medium.

2. Apparatus according to claim 1, wherein said driving means further includes:

10 at least a first roller chain carrier assembly located on a first side of a transport path of the printable medium.

3. Apparatus according to claim 2, wherein said driving means further includes:

15 a second roller chain carrier assembly located on a second side of said transport path, opposite said first side.

4. Apparatus according to claim 3, wherein said contacting means further includes:

20 at least one gripper crossbar having at least one device for gripping an edge of said printable medium, said at least one gripper crossbar being rotatably mounted to said fixed roller chain carrier assembly.

5. Apparatus according to claim 4, wherein said contacting means further includes:

at least one roller crossbar for contacting said printable medium in synchronism with said at least one gripper crossbar, said at least one roller crossbar being rotatably mounted to said second roller chain carrier assembly.

6. Apparatus according to claim 5, wherein said at least one gripping
5 device further includes:
a spring-like gripper finger for grasping said edge of said printable medium.

7. Apparatus according to claim 6, wherein said driving means further
includes:
a cam device for rotating said at least one gripper crossbar relative to said
10 printable medium. A

8. Apparatus according to claim 7, wherein said cam device rotates said at least one roller crossbar in synchronism with said at least one gripper crossbar, and said roller crossbar further includes:
at least one slot for receiving said spring-like gripper finger during rotation of
15 said gripping device.

9. Apparatus according to claim 7, wherein said cam device further includes:
a first section for rotating said gripping device in a first direction;
a second section for retaining said gripping device in a fixed rotational state;
20 and
a third section for rotating said gripping device in a second direction, opposite said first direction.

10. Apparatus according to claim 7, wherein said driving means further includes:

means for operably linking said at least one gripper crossbar with said cam device to control rotation of said at least one gripping device relative to said printable medium.

11. Apparatus according to claim 10, wherein said linking means further includes:

at least one gear for rotatably driving said gripper crossbar;
a cam follower for rotatably contacting said cam device; and
a cam lever arm for operably connecting said cam follower with said at least one gear.

12. Apparatus according to claim 11, wherein said at least one gear of said linking means further includes:

a first cam gear operably connected with said cam lever arm; and
a second gear, in meshing arrangement with said first gear, and fixedly connected with said at least one gripper crossbar.

13. Apparatus according to claim 12, further including:

at least one cutting cylinder pair for severing said printable medium in a direction transverse to a feed direction of said printable medium, said cutting cylinder pair being configured to permit said at least one gripper crossbar and said at least one roller crossbar to pass between first and second cylinders of said cutting cylinder pair in synchronism with rotation of said first and second cylinders.

14. A method for providing positive control over a printable medium being processed by a printing system, said method comprising the steps of:

contacting a printable medium from first and second sides of the printable medium with a contacting means; and

5 driving the contacting means along a transport path of the printable medium in synchronism with the printable medium.

15. A method according to claim 14, wherein said step of driving further includes a step of:

controlling said driving means to traverse said transport path at a speed greater
10 than that with which said printable medium is transported along said transport path.

16. A method according to claim 15, wherein said step of contacting further includes steps of:

contacting said printable medium at a location upstream of a cutting operation during which said printable medium is severed in a direction transverse to a feed
15 direction of the printable medium; and

advancing said contacting means across a surface of said printable medium, during transport of said printable medium, to a location at which said contacting means grasps an edge of said printable medium which was cut during said cutting operation.

20 17. A method according to claim 16, wherein said step of contacting further includes a step of:

rotating at least one gripper crossbar having a spring-like gripper finger across a surface of said printable medium during transport of said printable medium.

18. A method according to claim 17, further including a step of:
driving said contacting means in synchronism with said cutting operation.

19. A method according to claim 18, wherein said step of contacting further
includes steps of: *A*

5 rotating said gripper crossbar in a first direction to grasp said cut edge of said
printable medium; and

rotating said gripper crossbar in a second direction, opposite said first
direction, to release said cut edge of said printable medium.

Sub BFI 20. A carrier system for establishing positive control of a printable medium
10 processed by a printing system, the carrier system comprising:

at least a first roller chain carrier assembly located on the first side of a
transport path of a printable medium;

at least a second roller chain carrier assembly located on a second side of the
transport path;

15 at least one gripper crossbar in operative connection with the at least first
roller chain assembly; and

at least one roller crossbar in operative connection with said at least one
second roller chain carrier assembly, said at least one gripper crossbar and said at
least one roller crossbar being driven in synchronism with the printable medium.

20 21. A carrier system according to claim 20, wherein said at least one
gripper crossbar further includes:

at least one device for gripping an edge of said printable medium.

22. An apparatus according to claim 21, wherein said at least one gripping device further includes:

a spring-like gripper finger for grasping said edge of said printable medium.

23. A carrier system according to claim 22, wherein said at least one roller
5 crossbar further includes:

at least one slot for receiving said spring-like gripper finger during rotation of said at least one gripping device in synchronism with rotation of said at least one roller crossbar.

Sub 132 24. A carrier system according to claim 23, further including:
10 a cam device for rotating said at least one gripper crossbar and said at least one roller crossbar relative to said printable medium, said cam device further including:

a first section for rotating said gripper crossbar and said roller crossbar in a first direction;

15 a second section for retaining said gripper crossbar and said roller crossbar in a fixed rotational state; and

a third section for rotating said gripper crossbar and said roller crossbar in a second direction, opposite said first direction.

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